Relative Low Hepatitis B Virus Resistance in Human Immunodeficiency Virus-1-infected Patients under Lamivudine-based Antiretroviral Therapy

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Background/Objective

In HBV/HIV-1 – coinfected patients, emergence of lamivudine-resistant HBV may occur in 20% of patients per year under lamivudine-containing antiretroviral therapy (ART). Current guidelines recommend two drugs active against HBV in the ART regimen to prevent the emergence of resistant HBV variants in coinfected patients. However, lamivudine monotherapy for HBV infection in coinfected patients receiving ART had incidentally occurred in Taiwan until recently tenofovir was included in usual ART regimen. To understand the HBV resistance situation in HIV-infected patients in Taiwan, a cohort study was conducted in HIV-1 and HBV coinfected patients receiving lamivudine-containing ART to determine the prevalence and risk factors of hepatitis B virus drug resistance.

Method

This study is a prospective Cohort study conducted in HBV and HIV-1 coinfected patients at Kaohsiung Veterans General Hospital, enrolled between Jan 2009 and Dec 2014. Plasma HBV DNA levels were performed by Abbott RealTime HBV assay. The HBV genotypic resistance test was performed by (INNO-LiPA HBV DR v2, Innogenetics Biotechnology, Gent, Belgium) or an in house PCR.

Result

In our cohort study, we identified 103 patients with HIV and HBV infection. Most of our patients were male (99%) and got HIV infection by MSM routine (78%). Among the 57 patients without lamivudine-contained therapy in enrollment, five patients (8.8%) harbored lamivudine associated mutations, including I233V, L80I, L180M and M204V. In those patients receiving only lamivudine for HBV in ART, the cumulative incidence rate of HBV resistance (all YMDD) was 45% after 5-year treatment.

Conclusion

In this cohort study, a relative lower HBV resistance (YMDD mutation) rates under lamivudine-containing ART. It is crucial to use effective anti-HBV therapy that reduces the HBV DNA rapidly and minimizes the development of HBV resistance. Also HBV resistance presented in treatment naïve individuals with HBV and HIV infection.